

Creating and Analyzing Public Climate Data

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Who are we?

- Members of the Data Portal team.
- Responsible for the tools that translate post-processed data into standardized public data files, host those files on GFDL's public server, and provide analysis tools for the data.

The Big Picture

- Easily share model run information within GFDL and the broader scientific community.
- Use the model data in model intercomparison projects (MIP).

Agenda

- Show curator specific XML tags
- Insert XMLs into the curator database
- Overview of fre-curator architecture
- Demonstrate how to standardize data
- Demonstrate the database web interface
- Demonstrate the analysis web tools

XML Tags

```
<experiment name="c48L48_am3p10_control">
```

```
  <description  
    communityProject="CMIP5"  
    communityExperimentName="SSAM01"  
    communityExperimentID="ssam01"  
    communityModel="GFDL_AM3_COURSE"  
    communityModelID="GFDL-AM3-COURSE">  
  </description>
```

```
  <realization r="1" i="1" p="1"/>
```

```
  <description domainName="atmos"  
    communityName="SSAM" communityVersion="SSAMp1"  
    communityGrid="atmosGrid"/>
```

XML Tags

```
<communityComment>
```

Initial conditions for this experiment were obtained
from ...

```
</communityComment>
```

```
<scenario
```

communityForcing="GHG,SA,Oz,SI,VI,SS,BC,MD,OC (GHG
includes CO2, CH4, N2O, CFC11, CFC12, HCFC22,
CFC113)"

startTime="2000"

endTime="2010"

parentExperimentID="N/A"

parentExperimentRIP="N/A"

branch_time="0.0">

```
</scenario>
```

Exercise 1: XML Insertions

Exercise 2: Compare XMLs

Utilities

fre-curator: The name of the complete suite of standardization and analysis tools.

curator: The name of the model database.

fredb-pp: User script that runs the Curator suite.

fredb: Backend script that canonicalizes and sends the XML to FERatorMap.

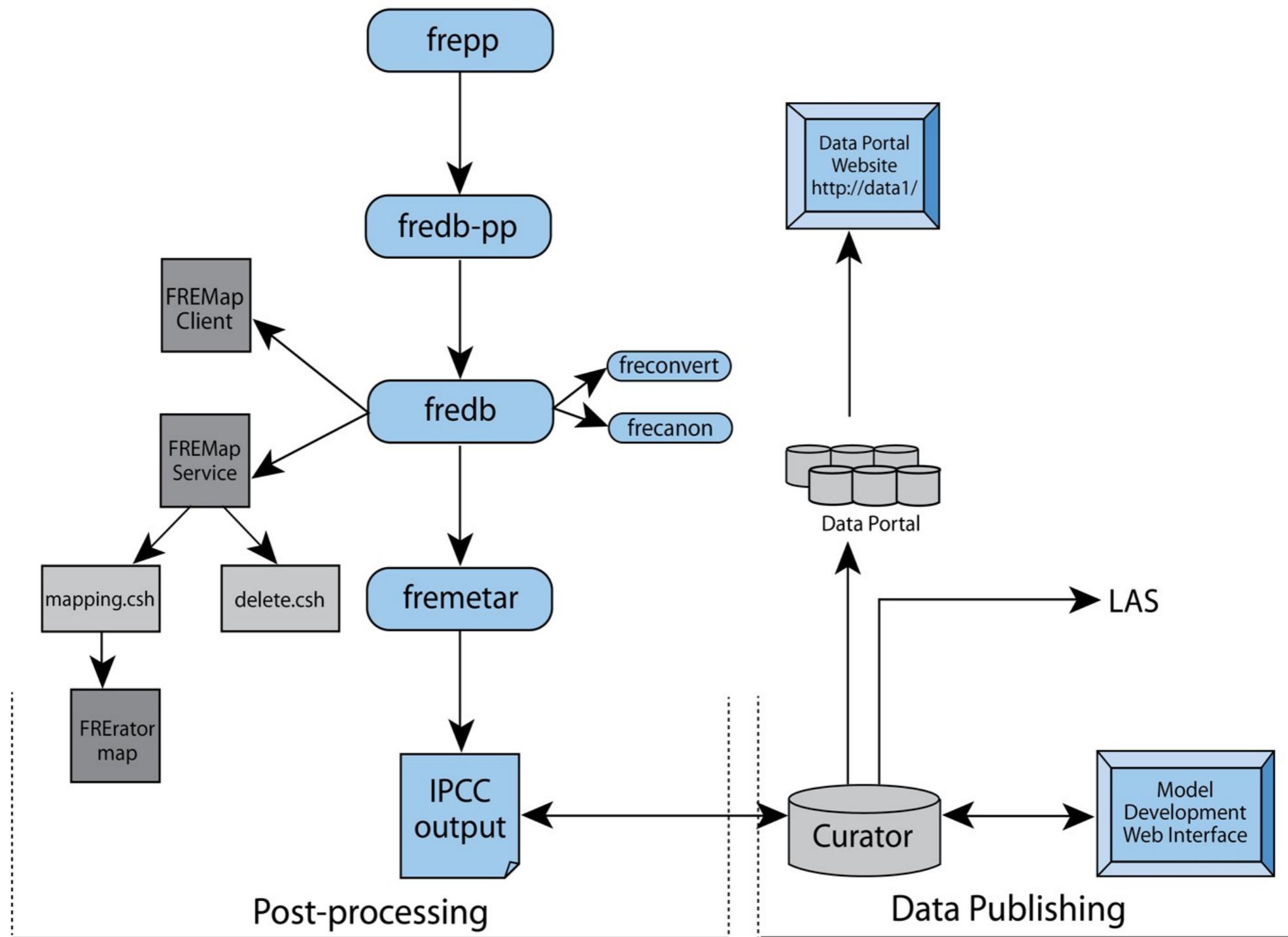
FERatorMap: Utility that parses and inserts XML information into the database.

Fremetar(ization): Utility that uses curator information to standardize NetCDF files.

MDBI (Model Database Interface): The web interface for information found in the curator database.

Web Analysis Tools: Web tools for running analysis scripts on standardized data.

FRE-Curator



Curator Contents

- Model and experiment details
- GFDL variable to MIP variable mappings
- Metadata associations with each MIP variable
- File statistics and input/output locations
- MIP table to variable mappings

MDBI

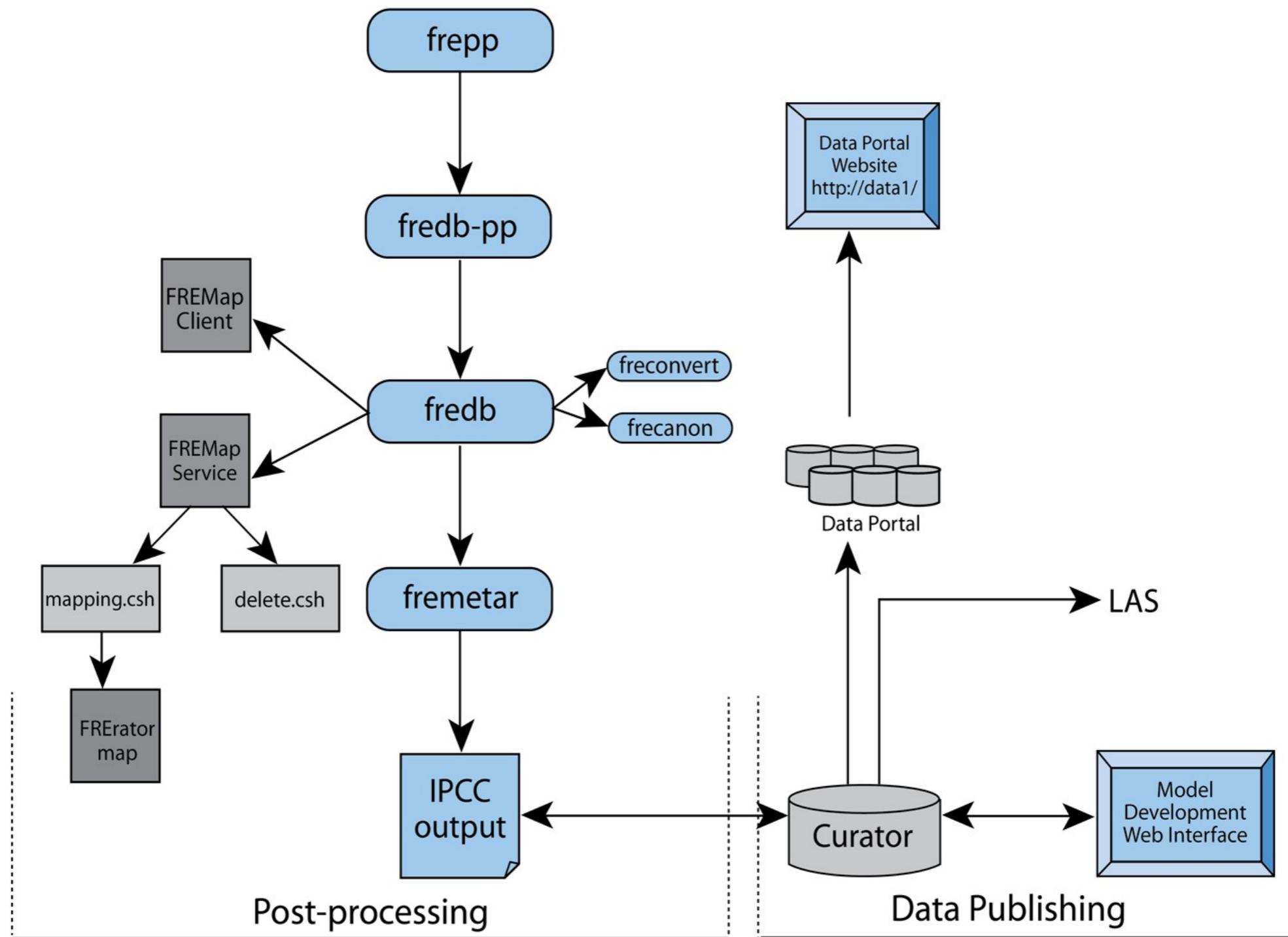
Exercise 3:

Standardizing Data

Fremetar

- Copies data to the analysis node's VFTMP filesystem
- Generates statistics
- Inserts supporting variables
- Modifies metadata
- Copies data back to archive

FRE-Curator



Exercise 4: Where's Turing?

Exercise 5:

Locating

Standardized Data

Workflow Chaining

```
<property name="DATA_PUBLISHER"
value="$FRE_CURATOR_HOME/share/bin/data_publisher.csh" />

<component type="atmos_scalar" start="1979"
source="atmos_scalar">
  <timeSeries freq="monthly" chunkLength="5yr">
    <analysis switch="$(use_module_publisher)"
cumulative="no" script="$(DATA_PUBLISHER) -I
ATMOS_SCALAR"/>
  </timeSeries>
</component>
```

DRS

Data Reference Syntax

/archive/keo/GFDL-AM3-
COURSE/ssam02/mon/atmos/Amon/r1i1
p1/v20110601/rsds/rsds_Amon_GFDL-
AM3-COURSE_ssam02_r1i1p1_200101-
201012.nc

Exercise 6:

Comparing

Outputs

Analysis